

Fig. 1

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PANTHER Prowler - Microsoft Internet Explorer

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Address http://panther.appliedbiosystems.com/prowler.jsp

PANTHER Classification System

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Search PANTHER Categories intracellular search

PANTHER Prowler Tips

Categories [4/523]

- Biological Processes [4/252]
 - Amino acid metabolism [0/6]
 - Apoptosis [0/5]
 - Blood circulation and gas exchange [0/3]
 - Carbohydrate metabolism [0/12]
 - Cell cycle [0/7]
 - Cell structure and mobility [0/3]
 - Coenzyme and prosthetic group metabolism [0/9]
 - Developmental processes [0/23]
 - Electron transport [0/4]
 - Homeostasis [0/5]
 - Immunity and defense [0/16]
 - Intracellular protein traffic [2/14]
 - Endocytosis [0/4]
 - Exocytosis [0/3]
 - General vesicle transport
 - Lysosome transport
 - Mitochondrial transport
 - Nuclear transport

Browse: Gene, Transcript, Protein, GeneX Assay, SNP and SNP Assay associated with selected categories/families

Step 1. Display Select search results list type Gene List 10 items per page

Step 2. Select datasets to query

Celera: ☐ M. musculus ☐ H. sapiens

NCBI: ☒ M. musculus ☒ H. sapiens ☒ R. norvegicus

FlyBase: ☒ D. melanogaster

SEARCH

Start PANTHER Prowler - Mid Internet 10:21 AM

Fig. 2

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PANTHER **Classification System**

Microsoft Internet Explorer

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☐ **checked items** | ☐ **Display** | ☐ **Gene List** | ☐ **Send To** | ☐ **Workspace**

☐ **Display:** 10 | ☐ **UPDATE** | ☐ **Expanded View** | ☐ **Filtered By:** | ☐ **PANTHER Molecular Function** | ☐ **Filter** | ☐ **Advanced Filter**

Hits 1-10 of 5414 [page: (1) 2 3 4 5 6 7 8 9 10 >>]

| Gene ID | Gene Name | Hit family (CF#) or subfamily (SF#) | PANTHER Score/Relation | PANTHER Molecular Function | PANTHER Biological Processes | GeneXAssay |
|------------------|---|--------------------------------------|-----------------------------------|-----------------------------------|--|---------------|
| 1. LocusID:13424 | dynein, cytoplasmic, heavy chain1 Dnchc1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Mm00466548.m |
| 2. LocusID:29489 | dynein, cytoplasmic, heavy chain 1 Dnchc1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Rn00570138.m1 |
| 3. CG7507 | dynein heavy chain 64C Dhc64c | View unavailable to non-CDS users | -6740.02 ●●● | Microtubule binding motor protein | General vesicle transport | |
| 4. LocusID:65209 | dynein, cytoplasmic, heavy chain 2 Dnch2 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Rn00576479.m1 |
| 5. LocusID:15194 | Huntington disease gene | View unavailable to non-CDS users | View unavailable to non-CDS users | Molecular function unclassified | General vesicle transport Other neuronal activity | Hs00169273.m1 |

☐ **Start** | ☐ **My Computer** | ☐ **Internet** | 10:21 AM

Fig. 3

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PANTHER Proviewer - Microsoft Internet Explorer

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Advanced Filter

0 UPDATE

| GeneXAssay | SNP Assay | Celera SNP ID | Transcript ID | Protein ID | Celera Start Pos | Celera End Pos | Celera Location (chromosome) | Public Start Pos | Public End Pos | Public Location (chromosome) | Species |
|---------------|-----------|---------------|------------------------------|---------------------------|--|--|--|------------------|----------------|------------------------------|------------------------|
| Mm00466548 m1 | | | XM 109305 (2 transcripts) | XM 109305 (2 proteins) | View unavailable to non-CDS users | View unavailable to non-CDS users | View unavailable to non-CDS users | 132372166 | 132425699 | 12 | NCBI: M. musculus |
| Rn00570138 m1 | | | NM 019226 | NP 062099 | View unavailable to non-CDS users | View unavailable to non-CDS users | View unavailable to non-CDS users | 4161977 | 4400166 | 8 | NCBI: R. norvegicus |
| Rn00576479 m1 | | | CG7507-RA (2 transcripts) | CG7507-PA (2 proteins) | View unavailable to non-CDS users | View unavailable to non-CDS users | View unavailable to non-CDS users | 33033473 | 33181273 | 5 | NCBI: M. musculus |

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Fig. 4

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PANTHER Prowler
 Classification System

Search PANTHER Categories **intracellular**

or

- Categories [4/523]
 - Biological Processes [4/523]
 - Amino acid metabolism [0/6]
 - Apoptosis [0/5]
 - Blood circulation and gas exchange [0/3]
 - Carbohydrate metabolism [0/12]
 - Cell cycle [0/7]
 - Cell structure and mobility [0/3]
 - Coenzyme and prosthetic group metabolism [0/9]
 - Developmental processes [0/23]
 - Electron transport [0/4]
 - Homeostasis [0/5]
 - Immunity and defense [0/16]
 - Intracellular protein traffic [2/14]
 - Endocytosis [0/4]
 - Exocytosis [0/3]
 - General vesicle transport
 - Lysosome transport
 - Mitochondrial transport
 - Nuclear transport

Browse: Gene, Transcript, Protein, GeneX Assay, SNP and SNP Assay associated with selected categories/families

Step 1. Display

Step 2.

Select search results list type

Gene list items per page

Gene list

Transcript/Protein list

Gene Expression Assay list

SNP Assay list

☐ FlyBase ☒ D. melanogaster ☐ R. norvegicus ☐ musculus

SEARCH

Username: Password:

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Fig. 5

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PANTHER
Classification System

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Links

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PANTHER transcript list Customize transcript list

Checked items Display Transcript/Protein Send To Workspace

Display: 10 UPDATE Expanded View Filtered By: Protein ID FILTER HMM Score Cutoff (<): 0.0 UPDATE

Hits 1-10 of 5414 [page: (1) 2 3 4 5 6 7 8 9 10 >>]

| Transcript ID | Protein ID | Gene ID | Gene Name | Hit family (CF#) or subfamily (SF#) | Panther best Score/Relation | Panther Molecular Function | Panther Biological Processes | GeneXAssay |
|---------------------------------------|------------|---------------|---|--|-----------------------------------|-----------------------------------|------------------------------|------------|
| <input type="checkbox"/> 1. XM 109305 | XP 109305 | LocusID:13424 | dynein, cytoplasmic, heavy chain 1 Dnchc1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | |
| <input type="checkbox"/> 2. NM 030238 | NP 084524 | LocusID:13424 | dynein, cytoplasmic, heavy chain 1 Dnchc1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Mm00466548 |
| <input type="checkbox"/> 3. NM 019226 | NP 062099 | LocusID:29489 | dynein, cytoplasmic, heavy chain 1 Dnchc1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Rn00570138 |
| <input type="checkbox"/> 4. CG7507-RA | CG7507-PA | CG7507 | Dynein heavy chain 64C Dhc64C | CYTOPLASMIC DYNEIN HEAVY CHAIN [CF12238:SF9] | -6740.02 ••• | Microtubule binding motor protein | General vesicle transport | |
| <input type="checkbox"/> 5. NM 023024 | NP 075413 | LocusID:65209 | dynein, cytoplasmic | View unavailable to non-CDS | View unavailable to non-CDS | Microtubule binding motor protein | General vesicle transport | Rn00576479 |

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Fig. 6

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PANTHER Prowler - Microsoft Internet Explorer

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Address http://panther.appliedbiosystems.com/

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List Send To Workspace

Filtered By: Protein ID FILTER HMM Score Cutoff (<): 0.0 UPDATE

| Name | Hit | Panther Score/Relation | Panther Molecular Function | Panther Biological Processes | SNP Assay | Celera SNP ID | Species |
|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------|---------------|---------------|--------------------------|
| In, asmic, chain 1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | | | NCBI: M. Musculus |
| In, asmic, chain 1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Mm00466548 m1 | | NCBI: M. musculus |
| In, asmic, chain 1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Rn00570138 m1 | | NCBI: R. norvegicus |
| In heavy 84C 4C | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | | | FlyBase: D. melanogaster |
| In, asmic, chain 1 | View unavailable to non-CDS users | View unavailable to non-CDS users | Microtubule binding motor protein | General vesicle transport | Rn00576479 m1 | | NCBI: R. norvegicus |

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Fig. 7

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File Edit View Favorites Tools Help Links Customize Links Free Hotmail

Back Address http://bobcat.fc.celera.com:6677/prowler/index_new.jsp Go

Celera Discovery System

BioMolecule Library Text/Sequence Analysis Workspace Help Logout

Panther Protein Family Viewer SEARCH: Categories families/subfamilies **apoptosis** go

SPECIES: ☒ *H. sapiens* ☒ *M. musculus* ☒ *D. melanogaster* Use Case Tips

Categories: ☒ or ☒ and update families clear

Families: ☒ update categories gene list clear

- SIGNAL TRANSDUCTION
- INTRACELLULAR PROTEIN TRAFFIC
- PROTEIN TARGETING AND LOCALIZATION
- TRANSPORT
- IMMUNITY AND DEFENSE
- ONCOGENESIS
- NEURONAL ACTIVITIES
- MUSCLE CONTRACTION
- BLOOD CLOTTING
- HOMEOSTASIS
- SENSORY PERCEPTION
- DEVELOPMENTAL PROCESSES
- CELL CYCLE
- BLOOD CIRCULATION AND GAS EXCHANGE
- APOPTOSIS**
- CELL STRUCTURE AND MOTILITY

Family tree Full MSA Partial MSA

RELAXIN CF12004

Family tree Full MSA Partial MSA

WD DOMAIN-CONTAINING PROTEIN CF11554

Family tree Full MSA Partial MSA

CASPASE-RELATED CF10454

Family tree Full MSA Partial MSA

INTERLEUKIN 6 CF11457

Family tree Full MSA Partial MSA

TRANSCRIPTION FACTOR ETS-RELATED CF11849

- ETS-RELATED PROTEIN (SF11)
- ETS DNA-BINDING PROTEIN (SF2)
- ETS-RELATED PROTEIN TEL (SF6)
- TRANSCRIPTION FACTOR TEL 2 (SF4)
- C-ETS-2-RELATED (SF1)
- gb def: lin-1 (caenorhabditis elegans) (SF0)
- ETS DOMAIN PROTEIN ELK-4 (SF13)

Fig. 8

TABLE 1 • Biological function enrichments in cell-cycle-regulated expression clusters

| Biological function | late G ₁ (53) | S (107) | G ₂ (108) | M (119) |
|-------------------------------------|--------------------------|----------|----------------------|----------|
| amino acid metabolism (35) | 0.1 0/0 | 0.5 1/1 | 0.5 1/1 | 0.3 0/1 |
| cell-to-cell adhesion (137) | 0.5 0/1 | 0.7 3/2 | 0.6 1/2 | 4.7 11/2 |
| chromosome segregation (17) | 0.1 0/0 | 0.1 0/0 | 2.7 3/0 | 5.0 5/0 |
| cytokine signaling (151) | 0.5 0/1 | 0.9 4/2 | 0.6 2/2 | 1.1 0/3 |
| cytoskeletal reorganization (33) | 0.1 0/0 | 1.9 3/0 | 6.1 7/1 | 0.5 1/1 |
| DNA replication (47) | 7.2 7/0 | 0.3 0/1 | 0.3 0/1 | 0.8 2/1 |
| glycolysis (31) | 0.1 0/0 | 0.2 0/0 | 0.2 0/0 | 0.2 0/1 |
| G-protein signaling (223) | 0.7 0/2 | 0/7 3/3 | 1.0 1/3 | 0.7 4/4 |
| immune regulation (274) | 0.6 2/2 | 1.2 1/4 | 1.2 1/4 | 1.0 2/5 |
| intracellular transport (114) | 0.4 1/1 | 1.2 4/2 | 0.5 1/2 | 0.8 3/2 |
| ionic homeostasis (47) | 0.6 1/0 | 0.3 0/1 | 0.3 0/3 | 0.3 0/1 |
| mitosis and cell-cycle control (89) | 0.3 12/1 | 0.5 1/1 | 5.0 8/1 | 5.7 10/1 |
| mRNA regulation (553) | 1.3 7/4 | 0.9 10/8 | 1.0 8/8 | 0.9 8/9 |
| muscular contraction (82) | 0.3 0/0 | 2.1 5/1 | 5.3 9/7 | 0.3 1/1 |
| neurotransmitter signaling (69) | 0.2 0/1 | 0.5 0/1 | 0.4 1/1 | 0.5 0/1 |
| PIP signaling (51) | 0.2 0/0 | 0.3 0/1 | 0.4 1/1 | 0.4 1/1 |
| protein phosphorylation (292) | 0.6 2/2 | 0.7 4/4 | 1.1 7/4 | 1.0 7/5 |
| translation (102) | 1.5 3/1 | 0.5 1/2 | 0.7 0/2 | 0.8 0/2 |

Shown are representative biological a;dkh a; a;olehatowiera aehoahfoawpjoia ueorha faeuew radscola ueworhpo a;tksdjpa anoeija oiejapo

Fig. 9

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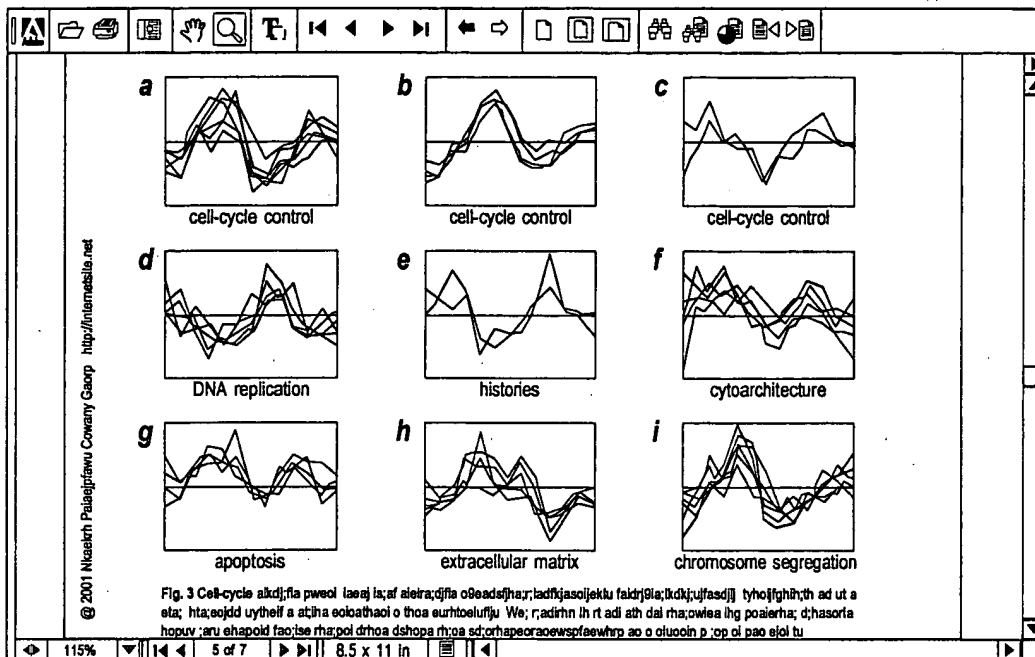


Fig. 10

Figure 11 displays a screenshot of a web browser window showing a table of protein families and their counts across four species: *H. sapiens* (H), *D. melanogaster* (F), *C. elegans* (W), *S. cerevisiae* (Y), and *A. thaliana* (A). The table is titled "TABLE 19. Number of proteins assigned to selected Panther families or subfamilies in *H. sapiens* (H), *D. melanogaster* (F), *C. elegans* (W), *S. cerevisiae* (Y), and *A. thaliana* (A).". The table lists various protein families and their corresponding counts for each species. The browser interface includes a toolbar at the top and a status bar at the bottom showing "115%" zoom and "5 of 7" pages.

| Panther family/subfamily | H | F | W | Y | A |
|--|----|----|----|---|----|
| <i>Neural structure, function, development</i> | | | | | |
| Ependymin | 1 | 0 | 0 | 0 | 0 |
| Ion Channels | | | | | |
| Acetylcholine receptor | 17 | 12 | 56 | 0 | 0 |
| Amloride-sensitive/degenerin | 11 | 24 | 27 | 0 | 0 |
| CNG/EAG | 22 | 9 | 9 | 0 | 30 |
| IRK | 16 | 3 | 3 | 0 | 0 |
| ITP/ryanodine | 10 | 2 | 4 | 0 | 0 |
| Neurotransmitter-gated | 61 | 51 | 59 | 0 | 19 |
| P2X purinoreceptor | 10 | 0 | 0 | 0 | 0 |
| TASK | 12 | 12 | 48 | 1 | 5 |
| Transient receptor | 15 | 3 | 3 | 1 | 0 |
| Voltage-gated Ca ²⁺ alpha | 22 | 4 | 8 | 2 | 2 |
| Voltage-gated Ca ²⁺ alpha-2 | 10 | 3 | 2 | 0 | 0 |
| Voltage-gated Ca ²⁺ beta | 5 | 2 | 2 | 0 | 0 |
| Voltage-gated Ca ²⁺ gamma | 1 | 0 | 0 | 0 | 0 |
| Voltage-gated K ⁺ alpha | 33 | 5 | 11 | 0 | 0 |
| Voltage-gated KQT | 6 | 2 | 3 | 0 | 0 |
| Voltage-gated Na ⁺ | 11 | 4 | 4 | 9 | 1 |
| Myelin basic protein | 1 | 0 | 0 | 0 | 0 |
| Myelin PO | 5 | 0 | 0 | 0 | 0 |
| Myelin proteolipid | 3 | 1 | 0 | 0 | 0 |
| Myelin-oligodendrocyte glycoprotein | 1 | 0 | 0 | 0 | 0 |
| Neuropilin | 2 | 0 | 0 | 0 | 0 |
| Plexin | 9 | 2 | 0 | 0 | 0 |
| Semaphorin | 22 | 6 | 2 | 0 | 0 |
| Synaptotagmin | 10 | 3 | 3 | 0 | 0 |

Fig. 11

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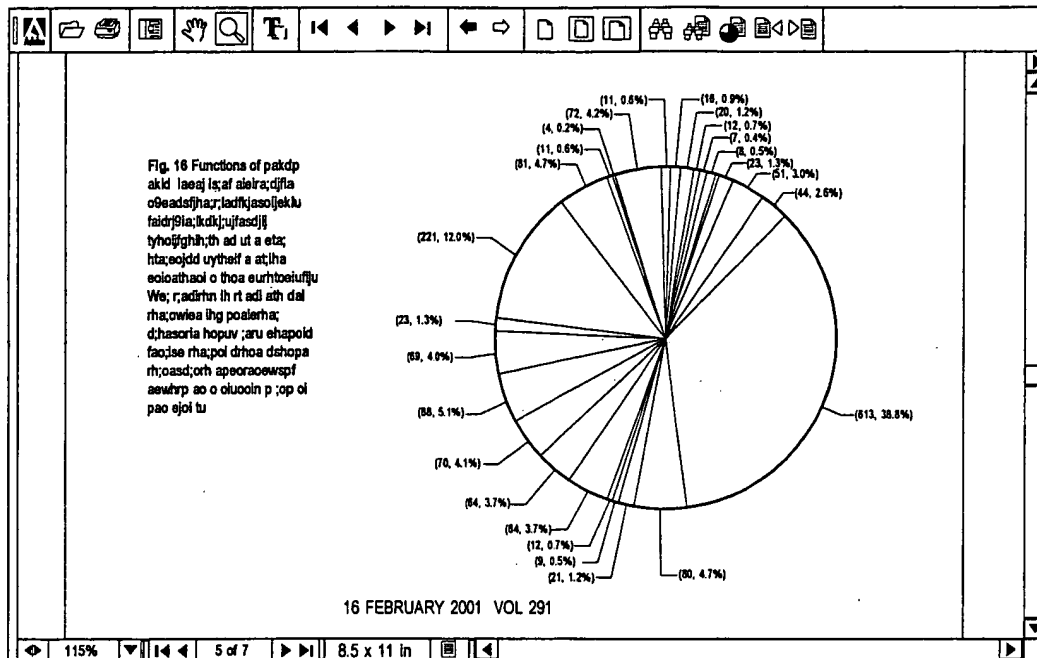


Fig. 12

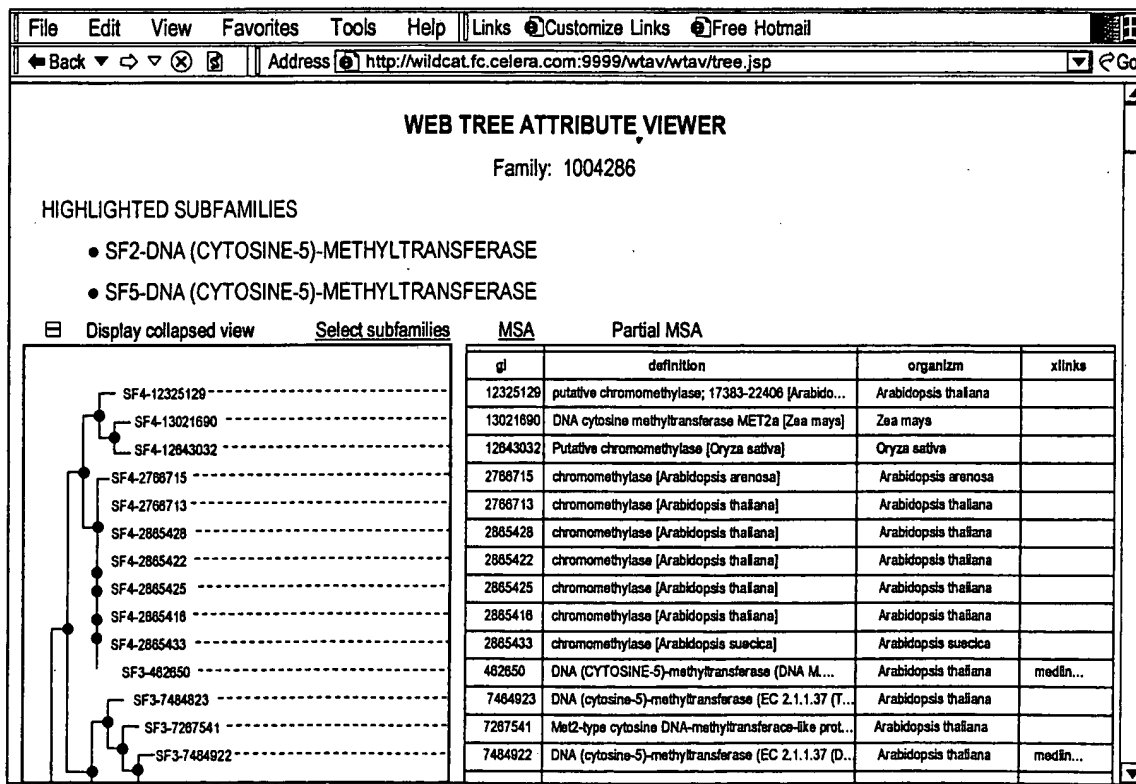


Fig. 13



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
| PANTHER/ Celera Protein Informatics / Microsoft Internet Explorer | | |
|--|--|------------------------------|
| File Edit View Favorites Tools Help Links Customize Links Free Hotmail | | |
| Back Address http://disc191a.celera.com/pwi-dev/jam/patherReprot.jsp?accession=CP39928&version Go | | |
| PANTHER Discovery Zone | | |
| Panther Classification | | |
| Protein Sequence: CP39928 | | |
| Family | Subfamily | SAM NLL- NULL score |
| <u>CYCLIC-NUCLEOTIDE-GATED CATION CHANNEL-RELATED (2129627)</u>  | <u>gb def:(ae003455) cql7922 gene product [drosophila melanogaster] (2129627SF1)</u> | -875.46 |
| | <u>CYCLIC-NUCLEOTIDE-GATED CATION CHANNEL (2129627:SF2)</u> | -390.97 |
| | <u>CYCLIC-NUCLEOTIDE-GATED CATION CHANNEL (2129627:SF7)</u> | -340.45 |
| | <u>CYCLIC-NUCLEOTIDE-GATED CATION CHANNEL (2129627:SF9)</u> | -301.98 |
| | Family Level Hit | -235.26 |

Fig. 15

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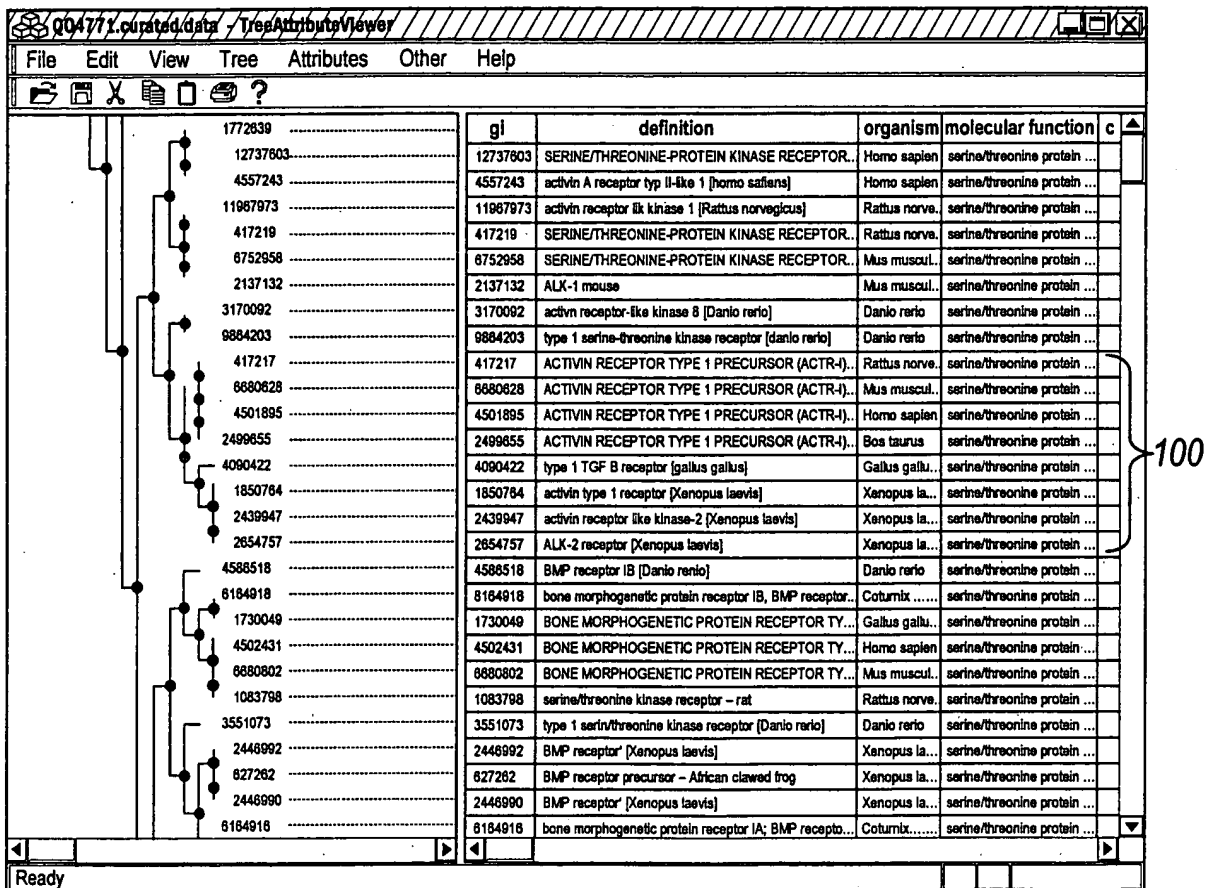



Fig. 16

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**Panther Protein
Function - Family Browser**

SEARCH: ☒ Categories ☒ Families

TIPS ?
 SPECIES (gene list): ☒ H. sapiens ☒ M. musculus ☒ D. melanogaster

Categories ? : ☒ or ☒ and
Families ? :

1. Select Categories ☐ below.

2. Click on "Update Families" button to view associated data.

Selecting the '+' expands and '-' collapses categories.


- ☐ Molecular Functions - 0
- ☐ Biological Processes - 15
 - ☐ Carbohydrate metabolism
 - ☐ Amino-acid metabolism
 - ☐ Lipid, fatty acid and steroid metabolism
 - ☒ Fatty acid metabolism
 - ☐ Steroid metabolism
 - ☐ Lipid metabolism
 - ☐ Phospholipid metabolism
 - ☐ Lipid and fatty acid binding
 - ☐ Regulation of lipid, fatty acid and steroid meta
 - ☐ Lipid and fatty acid transport
 - ☐ Other lipid, fatty acid and steroid metabolism
 - ☐ Nucleoside, nucleotide and nucleic acid metabolism
 - ☐ Protein metabolism and modification

1. Select families ☐ and or subfamilies ☐ below.

2. Click on "Go to Genelist" button to view associated genes.

Highlighted subfamilies correspond to matches with your selected categories.

Fig. 17


**Panther Protein
Function - Family Browser**

SEARCH: ☒ Categories ☒ Families

TIPS ?
 SPECIES (gene list): ☒ H. sapiens ☒ M. musculus ☒ D. melanogaster

Categories ? : ☒ or ☒ and
Families ? :

1. Select Categories ☐ below.

2. Click on "Update Families" button to view associated data.

Selecting the '+' expands and '-' collapses categories.

- ☐ Molecular Functions - 0
- ☐ Biological Processes - 15
 - ☐ Carbohydrate metabolism
 - ☐ Amino-acid metabolism
 - ☐ Lipid, fatty acid and steroid metabolism
 - ☒ Fatty acid metabolism
 - ☐ Steroid metabolism
 - ☐ Lipid metabolism
 - ☐ Phospholipid metabolism
 - ☐ Lipid and fatty acid binding
 - ☐ Regulation of lipid, fatty acid and steroid meta
 - ☐ Lipid and fatty acid transport
 - ☐ Other lipid, fatty acid and steroid metabolism
 - ☐ Nucleoside, nucleotide and nucleic acid metabolism
 - ☐ Protein metabolism and modification

1. Select Families ☐ and or subfamilies ☐ below.

2. Click on "Go to Genelist" button to view associated data.

Highlighted subfamilies correspond to searches with your selected categories

- ☒ APOLIPOPROTEIN - CF11428 - [7/8]
Family tree Full MSA Partial MSA
- ☒ DIPHOSPHOMEVALONATE DECARBOXYLASE-RELATED - CF10977 [1/20]
Family tree Full MSA Partial MSA
- ☒ FATTY ACID DESATURASE - CF10486 [5/5]
Family tree Full MSA Partial MSA
- ☒ N-ACETYLGLUCOSAMINYL TRANSFERASE COMPONENT GP11-RELATED
Family tree Full MSA Partial MSA
- ☒ ACYL-COENZYME A OXIDASE-RELATED - CF11520 [15/20]
Family tree Full MSA Partial MSA
- ☒ PATCHED PROTEIN-RELATED - CF10482 [2/8]
Family tree Full MSA Partial MSA
- ☒ OXYSTEROL BINDING PROTEIN-RELATED - CF10972 [7/10]
Family tree Full MSA Partial MSA
- ☒ 3 BETA-HYDROXYSTEROID DEHYDROGENASE-RELATED - CF11580 [8/1]

Fig. 18

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| <div>  Function Family Browser: Panther Gene List  <div>HMM Score Cutoff (<): <input type="text" value="-35.0"/> Display: <input type="text" value="30"/> <input type="button" value="update"/> <input type="button" value="export"/></div> </div> | | | | | | |
|--|------------|---|------------------------|-----------------|--|--|
| • Sort results by selecting column title. Columns will sort in descending or ascending order. | | | | | | |
| <input type="button" value="clr"/> <input checked="" type="button" value="all"/> | ID-protein | Panther Best Hit – Panther ID family (CF#) or subfamily (SF#) | Panther Score/Relation | Species | | |
| <input type="checkbox"/> 345. | gene1 | ORPHAN NUCLEAR HORMONE RECEPTOR LRH (CF11154:SF208) | -641.6 ... | H. sapiens | | |
| <input type="checkbox"/> 346. | gene2 | ORPHAN NUCLEAR HORMONE RECEPTOR LRH (CF11154:SF208) | -641.51 ... | H. sapiens | | |
| <input type="checkbox"/> 347. | gene3 | RETINOIC ACID RECEPTOR RXR-ALPHA (CF11154:SF210) | -670.15 ... | H. sapiens | | |
| <input type="checkbox"/> 348. | gene4 | RETINOIC ACID RECEPTOR RXR-GAMMA (CF11154:SF217) | -623.86 ... | H. sapiens | | |
| <input type="checkbox"/> 349. | gene5 | RETINOIC ACID RECEPTOR RXR-BETA (CF11154:SF218) | -611.24 ... | H. sapiens | | |
| <input type="checkbox"/> 350. | gene6 | PHOSPHOLIPASE D1 (CF11198:SF4) | -2100.67 ... | H. sapiens | | |
| <input type="checkbox"/> 351. | gene7 | PHOSPHOLIPASE D2 (CF11198:SF5) | -2047.31 ... | H. sapiens | | |
| <input type="checkbox"/> 352. | gene8 | INOSITOL PHOSPHATASE SKIP (CF11200:SF21) | -361.22 ... | H. sapiens | | |
| <input type="checkbox"/> 353. | gene9 | INOSITOL PHOSPHATASE SKIP (CF11200:SF21) | -343.71 ... | H. sapiens | | |
| <input type="checkbox"/> 354. | gene10 | INOSITOL PHOSPHATASE SKIP-RELATED (CF11200:SF22) | -389.15 ... | D. melanogaster | | |
| <input type="checkbox"/> 355. | gene11 | INOSITOL PHOSPHATASE SKIP-RELATED (CF11200:SF22) | -354.86 ... | D. melanogaster | | |
| <input type="checkbox"/> 356. | gene12 | SPHINGOSINE PHOSPHATE LYASE-RELATED (CF11253:SF10) | -722.67 ... | D. melanogaster | | |

Fig. 19

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| gi | sf_name | organism | molecular function | biological process |
|--|---------------------|--------------------------|---|--|
| SF0 | APOLIPOPROTEIN E | Mammals,Rodents,Primates | Apolipoprotein,Transfer/carrier protein | lipid and fatty acid transport, LIPID, FATTY ACID AND STEROID METABOLISM, lipid and fa |
| SF1 | APOLIPOPROTEIN A-IV | Mammals,Rodents,Primates | Apolipoprotein,Transfer/carrier protein | lipid and fatty acid transport, LIPID, FATTY ACID AND STEROID METABOLISM, lipid and fa |
| SF2 | APOLIPOPROTEIN A-1 | Mammals,Rodents,Primates | Apolipoprotein,Transfer/carrier protein | lipid and fatty acid transport, LIPID, FATTY ACID AND STEROID METABOLISM, lipid and fa |
| Lipid and fatty acid transport, LIPID, FATTY ACID AND STEROID METABOLISM, lipid and fatty acid transport, TRANSPORT, BLOOD CIRCULATION AND GAS EXCHANGE; | | | | |

Fig. 21A

| gi | sf_name | definition | organism |
|----------|---------------------|---|------------------------|
| 416626 | APOLIPOPROTEIN E | APOLIPOPROTEIN E PRECURSOR (APO-E) | bos taurus |
| 10644783 | APOLIPOPROTEIN E | apolipoprotein E [Tupaia glis] | tupaia glis |
| 3913071 | APOLIPOPROTEIN E | APOLIPOPROTEIN E (APO-E) | saimiri sciureus |
| 114040 | APOLIPOPROTEIN E | APOLIPOPROTEIN E PRECURSOR (APO-E) | macaca fascicularis |
| 114042 | APOLIPOPROTEIN E | APOLIPOPROTEIN E PRECURSOR (APO-E) | papio hamadryas anubis |
| 3913070 | APOLIPOPROTEIN E | APOLIPOPROTEIN E PRECURSOR (APO-E) | macaca mulatta |
| 11066430 | APOLIPOPROTEIN E | apolipoprotein E [Hylobates lar] | hylobates lar |
| 178853 | APOLIPOPROTEIN E | apolipoprotein E | homo sapiens |
| 4557325 | APOLIPOPROTEIN E | APOLIPOPROTEIN E PRECURSOR (APO-E) | homo sapiens |
| 178849 | APOLIPOPROTEIN E | apolipoprotein E | homo sapiens |
| 11066425 | APOLIPOPROTEIN E | apolipoprotein E [Pongo pygmaeus] | pongo pygmaeus |
| 11034803 | APOLIPOPROTEIN E | apolipoprotein E [Pan troglodytes] | pan troglodytes |
| 11066420 | APOLIPOPROTEIN E | apolipoprotein E [Gorilla gorilla] | gorilla gorilla |
| 114008 | APOLIPOPROTEIN A-IV | APOLIPOPROTEIN A-IV PRECURSOR (APO-... | rattus norvegicus |
| 8392909 | APOLIPOPROTEIN A-IV | apolipoprotein C-IV [Rattus norvegicus] | rattus norvegicus |
| 6680702 | APOLIPOPROTEIN A-IV | apolipoprotein A-IV [Mus musculus] | mus musculus |
| 191889 | APOLIPOPROTEIN A-IV | apolipoprotein A-IV | mus musculus castaneus |
| 12836356 | APOLIPOPROTEIN A-IV | putative [Mus musculus] | mus musculus |
| 1703331 | APOLIPOPROTEIN A-IV | APOLIPOPROTEIN A-IV PRECURSOR (APO-... | mus musculus |
| 109575 | APOLIPOPROTEIN A-IV | apolipoprotein A-IV precursor - mouse (str... | mus musculus |
| 3645997 | APOLIPOPROTEIN A-IV | apolipoprotein AIV [Gallus gallus] | gallus gallus |
| 3913046 | APOLIPOPROTEIN A-IV | APOLIPOPROTEIN A-IV PRECURSOR (APO-... | sus scrofa |
| 2492913 | APOLIPOPROTEIN A-IV | APOLIPOPROTEIN A-IV PRECURSOR (APO-... | papio hamadryas anubis |
| 481521 | APOLIPOPROTEIN A-IV | APOLIPOPROTEIN A-IV PRECURSOR (APO-... | macaca fascicularis |
| 71797 | APOLIPOPROTEIN A-IV | apolipoprotein A-IV precursor - human | homo sapiens |
| 114008 | APOLIPOPROTEIN A-IV | APOLIPOPROTEIN A-IV PRECURSOR (APO-... | homo sapiens |
| 4502151 | APOLIPOPROTEIN A-IV | apolipoprotein A-IV precursor - [Homo sapien... | homo sapiens |
| 11440019 | APOLIPOPROTEIN A-IV | apolipoprotein A-IV precursor - [Homo sapien... | homo sapiens |
| 6686379 | APOLIPOPROTEIN A-IV | APOLIPOPROTEIN A-1 PRECURSOR | |

Fig. 21B



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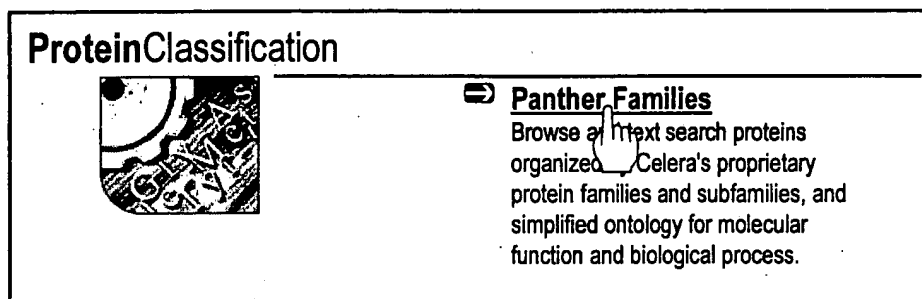







Fig. 23

| | | | | |
|--|--|---|--|-----------------------------------|
|  Panther Protein Function - Family Browser | | SEARCH  : <input type="radio"/> Categories <input type="radio"/> Families <input type="text"/> | | <input type="button" value="go"/> |
| Tips  | | SPECIES (gene list): <input checked="" type="checkbox"/> H. sapiens <input checked="" type="checkbox"/> M. musculus <input checked="" type="checkbox"/> D. melanogaster | | |
| Categories  : <input type="button" value="update families"/> <input type="radio"/> or <input type="radio"/> and <input type="button" value="clr"/> | | Families  : <input type="button" value="update categories"/> • <input type="button" value="go to genelist"/> <input type="button" value="all"/> <input type="button" value="clr"/> | | |
| <p>1. Select Categories <input type="checkbox"/> below.</p> <p>2. Click on "Update Families" button to view associated data.</p> <p>Selecting the '+' expands and '-' collapses categories.</p> <p><input type="checkbox"/> Molecular Functions - 0</p> <p><input type="checkbox"/> Biological Processes - 0</p> | | <p>1. Select families <input type="checkbox"/> and or subfamilies <input type="checkbox"/> below.</p> <p>2. Click on "Go to Genelist" button to view associated genes.</p> <p>Highlighted subfamilies correspond to matches with your selected categories.</p> | | |

↑
108

↑
110

Fig. 24

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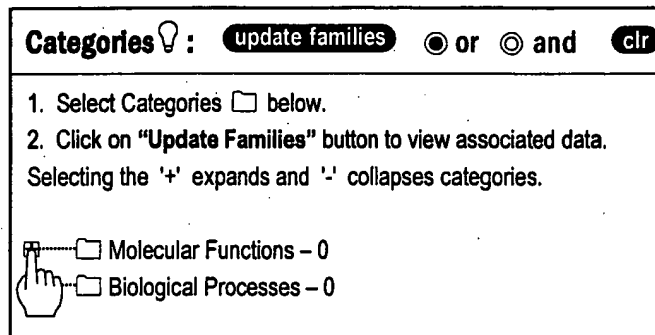


Fig. 25

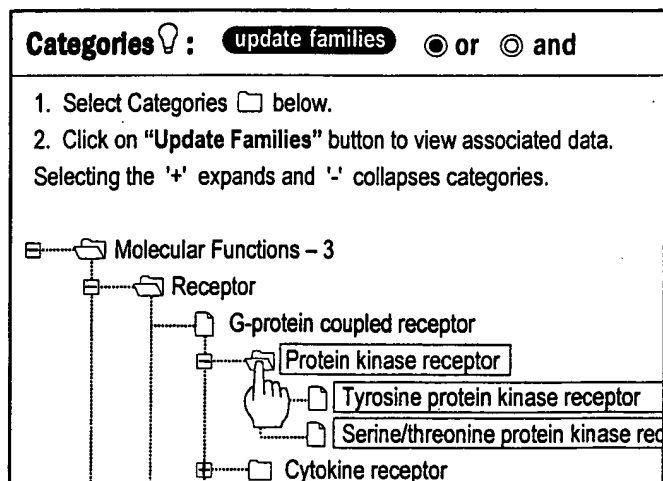


Fig. 26

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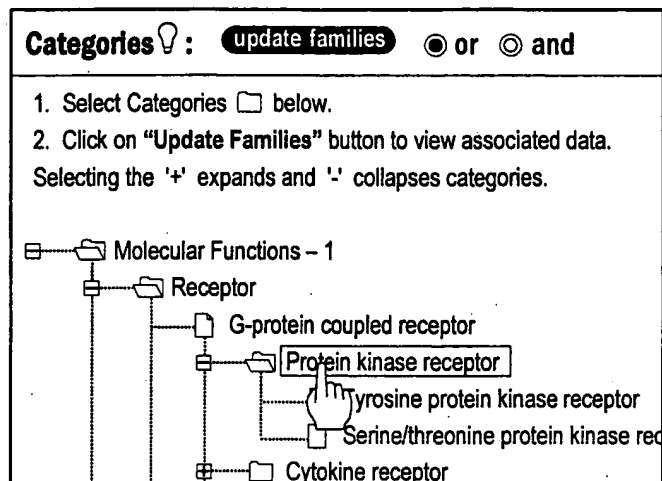


Fig. 27

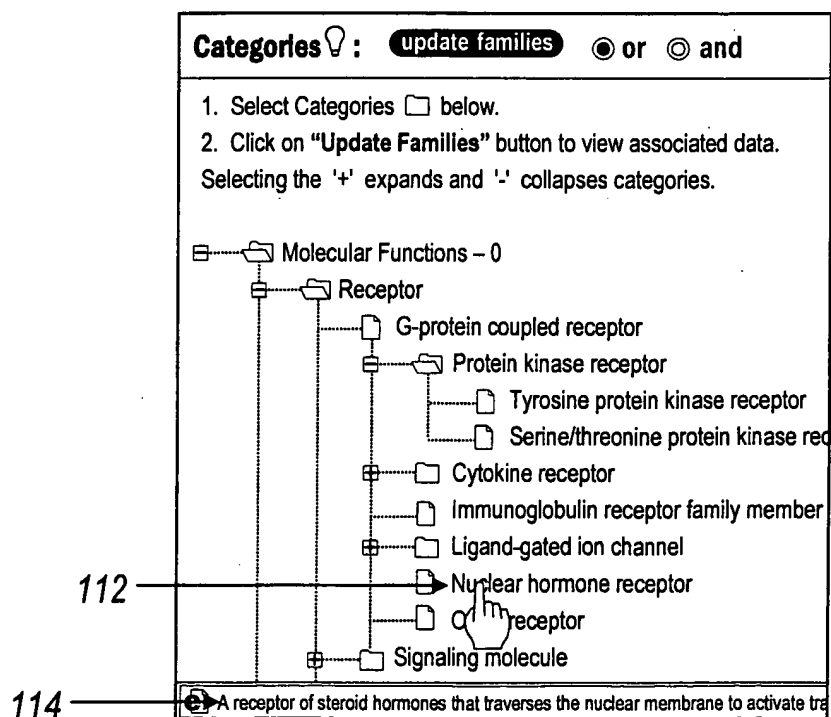


Fig. 28

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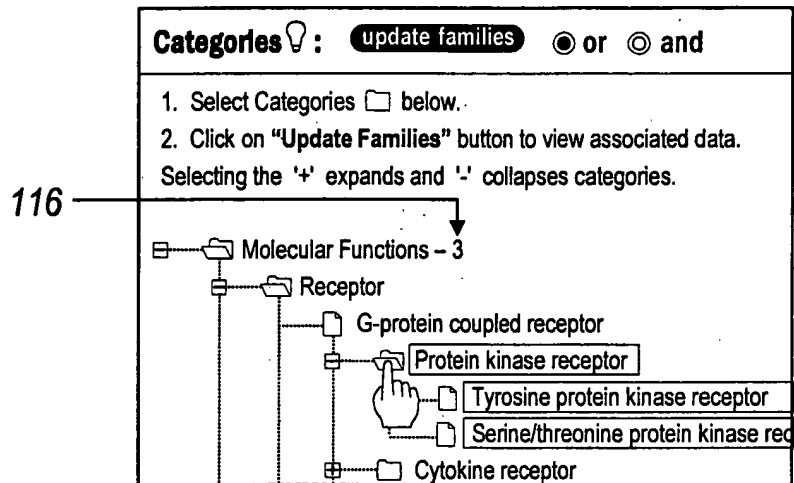


Fig. 29

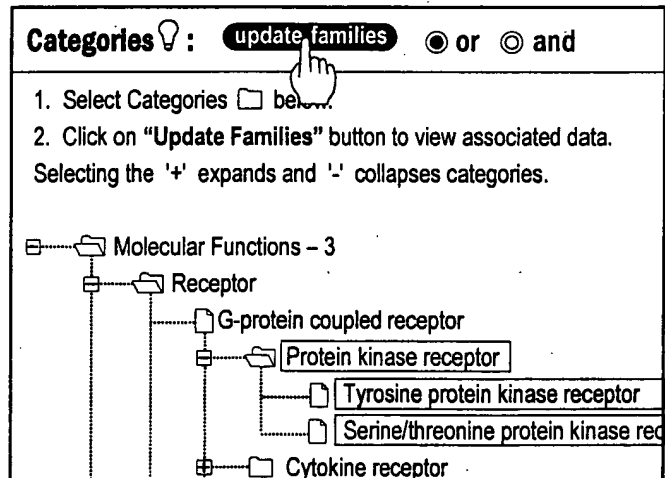


Fig. 30

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| Categories ⓘ: update families <input type="radio"/> or <input type="radio"/> and clr | Families ⓘ: update categories • go to genelist | | | | | | | | | |
|--|--|--|---|---|--|---|--|--|---|---|
| <p>1. Select Categories <input type="checkbox"/> below.</p> <p>2. Click on "Update Families" button to view associated data.</p> <p>Selecting the '+' expands and '-' collapses categories.</p> <div style="margin-top: 10px;"> <ul style="list-style-type: none"> [-] Molecular Functions - 3 <ul style="list-style-type: none"> [-] Receptor <ul style="list-style-type: none"> [-] G-protein coupled receptor <ul style="list-style-type: none"> [-] Protein kinase receptor <ul style="list-style-type: none"> [-] Tyrosine protein kinase recept [-] Serine/threonine protein kinas [-] Cytokine receptor [-] Immunoglobulin receptor family mem [-] Ligand-gated ion channel [-] Nuclear hormone receptor [-] Other receptor [-] Signaling molecule [-] Kinase [-] Phosphatase [-] Plateau [-] Select regulatory molecule </div> | <p>1. Select Families <input type="checkbox"/> and/or subfamilies <input type="checkbox"/> below.</p> <p>2. Click on "Go to Genelist" button to view associated data.</p> <p>Highlighted subfamilies correspond to searches with your selected categories</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tbody> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 - (1/20)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>SERINE/THREONINE PROTEIN KINASE CF 10467 - (3/10)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 - (13/13)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>CELL ADHESION MOLECULE-RELATED CF11563 - (9/184)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>TGF BETA RECEPTOR FAMILY MEMBER CF11901 - (22/35)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>THAUMATIN-RELATED CF10172 - (1/19)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>CELL ADHESION MOLECULE-RELATED CF10489 - (11/95)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>PROTEIN TYROSINE KINASE CF11795 - (31/70)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> <tr> <td style="padding: 2px 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>EDNFANT B GROWTH FACTOR RECEPTOR-RELATED CF10817 (8/16)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> </td> </tr> </tbody> </table> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 - (1/20)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>SERINE/THREONINE PROTEIN KINASE CF 10467 - (3/10)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 - (13/13)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>CELL ADHESION MOLECULE-RELATED CF11563 - (9/184)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>TGF BETA RECEPTOR FAMILY MEMBER CF11901 - (22/35)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>THAUMATIN-RELATED CF10172 - (1/19)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>CELL ADHESION MOLECULE-RELATED CF10489 - (11/95)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>PROTEIN TYROSINE KINASE CF11795 - (31/70)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>EDNFANT B GROWTH FACTOR RECEPTOR-RELATED CF10817 (8/16)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 - (1/20)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>SERINE/THREONINE PROTEIN KINASE CF 10467 - (3/10)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 - (13/13)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>CELL ADHESION MOLECULE-RELATED CF11563 - (9/184)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>TGF BETA RECEPTOR FAMILY MEMBER CF11901 - (22/35)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>THAUMATIN-RELATED CF10172 - (1/19)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>CELL ADHESION MOLECULE-RELATED CF10489 - (11/95)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>PROTEIN TYROSINE KINASE CF11795 - (31/70)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>EDNFANT B GROWTH FACTOR RECEPTOR-RELATED CF10817 (8/16)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> | | | | | | | | | | |

Fig. 31

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| Families ⓘ: update categories • go to genelist |
|---|
| <p>1. Select families <input type="checkbox"/> and subfamilies <input type="checkbox"/> below.</p> <p>2. Click on "Go to Genelist" button to view associated genes.</p> <p>Highlighted subfamilies correspond to matches with your selected categories.</p> |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 - (1/20)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>SERINE/THREONINE PROTEIN KINASE CF 10467 - (3/10)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 - (13/13)</div> </div> <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Family tree Full MSA Partial MSA </div> |
| <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">[-]</div> <div>CELL ADHESION MOLECULE-RELATED CF11563 - (9/184)</div> </div> |

Fig. 32

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| | | |
|---|--------------------------|--|
| Families : update categories • go to genelist | | |
| 1. Select families <input type="checkbox"/> and or subfamilies <input type="checkbox"/> below. 2. Click on "Go to Genelist" button to view associated genes. Highlighted subfamilies correspond to matches with your selected categories. | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 – (1/20) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | SERINE/THREONINE PROTEIN KINASE CF 10467 – (3/10) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 – (13/13) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | CELL ADHESION MOLECULE-RELATED CF11563 – (9/184) |

Fig. 33

| | | |
|---|--------------------------|--|
| Families : update categories • go to genelist | | |
| 1. Select families <input type="checkbox"/> and or subfamilies <input type="checkbox"/> below. 2. Click on "Go to Genelist" button to view associated genes. Highlighted subfamilies correspond to matches with your selected categories. | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 – (1/20) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | SERINE/THREONINE PROTEIN KINASE CF 10467 – (3/10) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 – (13/13) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | CELL ADHESION MOLECULE-RELATED CF11563 – (9/184) |

Fig. 34

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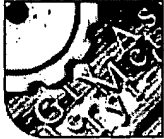
| | | |
|--|-------------------------------------|--|
| Families : update categories • go to genelist | | |
| <p>1. Select families <input type="checkbox"/> and or subfamilies <input type="checkbox"/> below.</p> <p>2. Click on "Go to Genelist" button to view associated genes.</p> <p>Highlighted subfamilies correspond to matches with your selected categories.</p> | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 – (1/20) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | SERINE/THREONINE PROTEIN KINASE CF 10467 – (3/10) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 – (13/13) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | CELL ADHESION MOLECULE-RELATED CF11563 – (9/184) |

Fig. 35


| | | |
|--|-------------------------------------|--|
| Families : update categories • go to genelist | | |
| <p>1. Select families <input type="checkbox"/> and or subfamilies <input type="checkbox"/> below.</p> <p>2. Click on "Go to Genelist" button to view associated genes.</p> <p>Highlighted subfamilies correspond to matches with your selected categories.</p> | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 – (1/20) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | SERINE/THREONINE PROTEIN KINASE CF 10467 – (3/10) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | TYROSINE-PROTEIN KINASE RECEPTOR CF 10301 – (13/13) |
| Family tree | Full MSA | Partial MSA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | CELL ADHESION MOLECULE-RELATED CF11563 – (9/184) |

Fig. 36

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Protein Classification



Panther Families

Browse or next search proteins organized by Celera's proprietary protein families and subfamilies.

Fig. 37






| | | | |
|--|--|--|--|
|  Panther Protein Function - Family Browser Tips | | SEARCH  : <input type="radio"/> Categories <input type="radio"/> Families <input type="text"/> <input type="button" value="go"/> | |
| | | SPECIES (gene list): <input checked="" type="checkbox"/> H. sapiens <input checked="" type="checkbox"/> M. musculus <input checked="" type="checkbox"/> D. melanogaster | |
| Categories  : <input type="button" value="update families"/> <input type="radio"/> or <input type="radio"/> and <input type="button" value="clr"/> | | Families  : <input type="button" value="update categories"/> • <input type="button" value="go to genelist"/> <input type="button" value="all"/> <input type="button" value="clr"/> | |
| 1. Select Categories <input type="checkbox"/> below. 2. Click on "Update Families" button to view associated data. Selecting the '+' expands and '-' collapses categories. <div> <input type="checkbox"/> Molecular Functions - 0 <input type="checkbox"/> Biological Processes - 0 </div> | | 1. Select families <input type="checkbox"/> and or subfamilies <input type="checkbox"/> below. 2. Click on "Go to Genelist" button to view associated genes. Highlighted subfamilies correspond to matches with your selected categories. | |

Fig. 38

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SEARCH  : ☒ Categories ☐ Families





Fig. 39

Categories  : ☒ or ☐ and

1. Select Categories ☐ below.
2. Click on "Update Families" button to view associated data.
Selecting the '+' expands and '-' collapses categories.

- ☒ Protein kinase receptor
 - ☐ Tyrosine protein kinase receptor
 - ☐ Serine/threonine protein kinase receptor
- ☒ Cytokine receptor
- ☒ Immunoglobulin receptor family member
- ☒ Ligand-gated ion channel
- ☒ Nuclear hormone receptor
- ☒ Other receptor
- ☒ Signaling molecule
- ☒ Kinase
 - ☒ Protein kinase
 - ☐ Tyrosine protein kinase receptor
 - ☐ Non-receptor tyrosine protein kinase
 - ☐ Serine/threonine protein kinase receptor
 - ☐ Non-receptor serine/threonine protein kinase
 - ☐ Carbohydrate kinase
 - ☐ Nucleotide kinase
 - ☐ Amino acid kinase
 - ☐ Other kinase

Fig. 40

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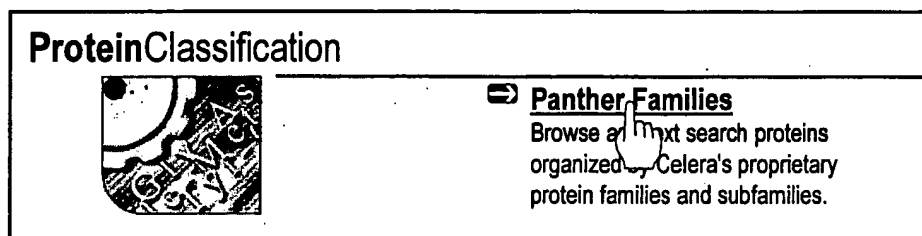


Fig. 41



| | | | | |
|--|--|--|--|-----------------------------------|
|  Panther Protein Function - Family Browser | | SEARCH ? : <input type="radio"/> Categories <input type="radio"/> Families <input type="text"/> | | <input type="button" value="go"/> |
| Tips ? | | SPECIES (gene list): <input checked="" type="checkbox"/> H. sapiens <input checked="" type="checkbox"/> M. musculus <input checked="" type="checkbox"/> D. melanogaster | | |
| Categories ? : <input type="button" value="update families"/> <input type="radio"/> or <input type="radio"/> and <input type="button" value="clr"/> | | Families ? : <input type="button" value="update categories"/> • <input type="button" value="go to genelist"/> <input type="button" value="all"/> <input type="button" value="clr"/> | | |
| <p>1. Select Categories <input type="checkbox"/> below.</p> <p>2. Click on "Update Families" button to view associated data.</p> <p>Selecting the '+' expands and '-' collapses categories.</p> <p><input type="checkbox"/> Molecular Functions - 0</p> <p><input type="checkbox"/> Biological Processes - 0</p> | | <p>1. Select families <input type="checkbox"/> and or subfamilies <input type="checkbox"/> below.</p> <p>2. Click on "Go to Genelist" button to view associated genes.</p> <p>Highlighted subfamilies correspond to matches with your selected categories.</p> | | |

Fig. 42

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SEARCH  : ☐ Categories ☒ Families





Fig. 43

Families  : •

1. Select Families ☐ and or subfamilies ☐ below.
 2. Click on "Go to Genelist" button to view associated data.
 Highlighted subfamilies correspond to searches with your selected categories

| | | |
|-------------------------------------|---|--------------------------|
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10022 (3/7) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10433 (2/2) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10450 (3/3) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10452 (1/1) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR ALPHA CHAIN CF10475 (10/10) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10481 (5/7) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10610 (6/7) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR DELTA CHAIN CF10850 (3/3) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10930 (1/1) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF11424 (7/12) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR GAMMA CHAIN CF11488 (8/7) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10477 (2/2) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10449 (4/4) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |
| <input checked="" type="checkbox"/> | T-CELL RECEPTOR BETA CHAIN CF10451 (2/2) | <input type="checkbox"/> |
| Family tree | Full MSA Partial MSA | |

Fig. 44

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Families

1. Select Families ☐ and or subfamilies ☐ below.
2. Click on "Go to Genelist" button to view associated data.
Highlighted subfamilies correspond to searches with your selected categories

☐ ☐ C-TYPE LECTIN-RELATED FAMILY MEMBER CF10148 (1/20)
Family tree Full MSA Partial MSA

Fig. 45

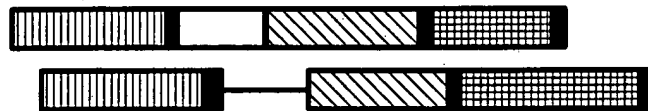
| | | | | | | |
|---|--------------|---|------------------------|-----|--|-------------|
| <div> Function Family Browser: Protein Families <input type="text"/> HMM Score Cutoff (<): <input type="text" value="-35.0"/> Display: <input type="text" value="20"/> <input type="button" value="update"/> <input type="button" value="export"/> </div> | | | | | | |
| Hits 1-10 of 5414 [page: (1) 2 3 4 5 6] • Sort results by selecting column title. Columns will sort in descending or ascending order. | | | | | | |
| <input type="button" value="clr"/> <input type="button" value="all"/> | ID-protein | Panther Best Hit – Panther ID family (CF#) or subfamily (SF#) | Panther Score/Relation | | | Species |
| <input type="checkbox"/> | 1. hCP43060 | BONE MORPHOGENETIC PROTEIN RECEPTOR TYPE 1A (CF1... | -1071.90 | *** | | H. sapiens |
| <input type="checkbox"/> | 2. hCP20073 | ACTIVIN RECEPTOR TYPE I (CF11901-SF30) | -1068.05 | *** | | M. musculus |
| <input type="checkbox"/> | 3. hCP5773 | TGF-BETA RECEPTOR TYPE I (CF11901-SF28) | -1046.96 | *** | | M. musculus |
| <input type="checkbox"/> | 4. hCP44799 | TGF-BETA RECEPTOR TYPE I (CF11901-SF26) | -1043.75 | *** | | H. sapiens |
| <input type="checkbox"/> | 5. hCP9004 | SERINE/THIONINE-PROTEIN KINASE RECEPTOR R3 (CF1190... | -1004.39 | *** | | M. musculus |
| <input type="checkbox"/> | 6. hCP18779 | TYROSINE-PROTEIN KINASE 7-RELATED (CF11901-SF167) | -1004.39 | *** | | M. musculus |
| <input type="checkbox"/> | 7. hCP20049 | ACTIVIN RECEPTOR-LINE KINASE 7 (CF11901-SF20) | -1024.83 | *** | | M. musculus |
| <input type="checkbox"/> | 8. hCP18624 | TGF-BETA RECEPTOR TYPE II (CF11901-SF22) | -1002.02 | *** | | M. musculus |
| <input type="checkbox"/> | 9. hCP20668 | BONE MORPHOGENETIC PROTEIN RECEPTOR TYPE IA (CF1... | -864.3 | *** | | M. musculus |
| <input type="checkbox"/> | 10. hCP51898 | ACTIVIN RECEPTOR TYPE IB (CF11901-SF28) | -980.95 | *** | | H. sapiens |
| <input type="checkbox"/> | 11. hCP39834 | ACTIVIN RECEPTOR TYPE II (CF11901-SF21) | -689.85 | *** | | H. sapiens |

Fig. 46

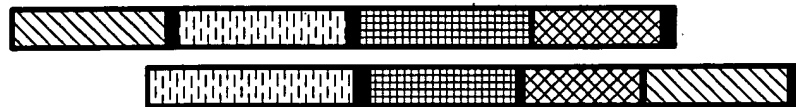
31/33



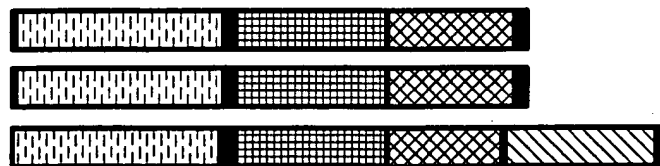
FAMILY A



FAMILY B



FAMILY C



FAMILY D

Fig. 47

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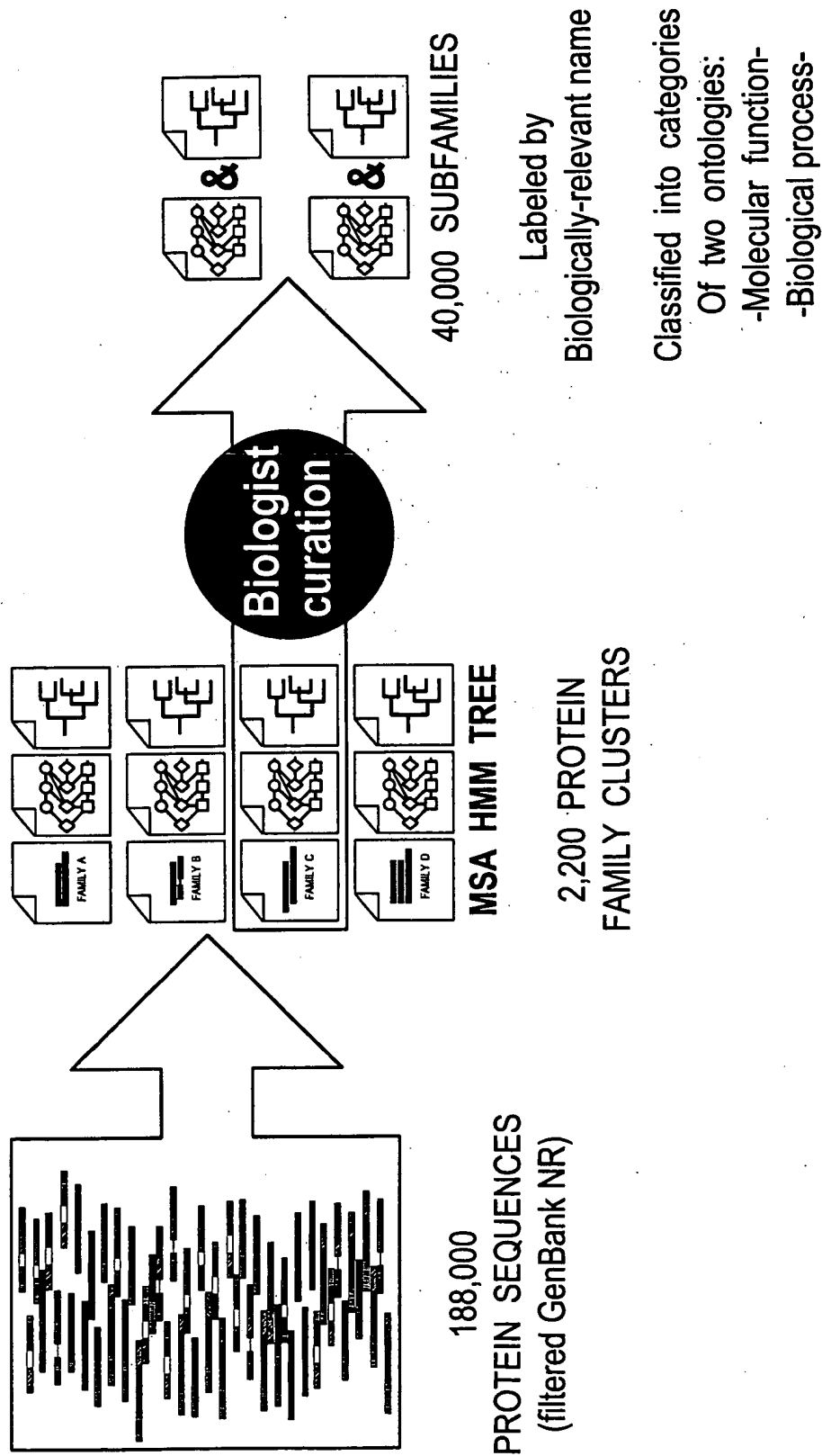


Fig. 48

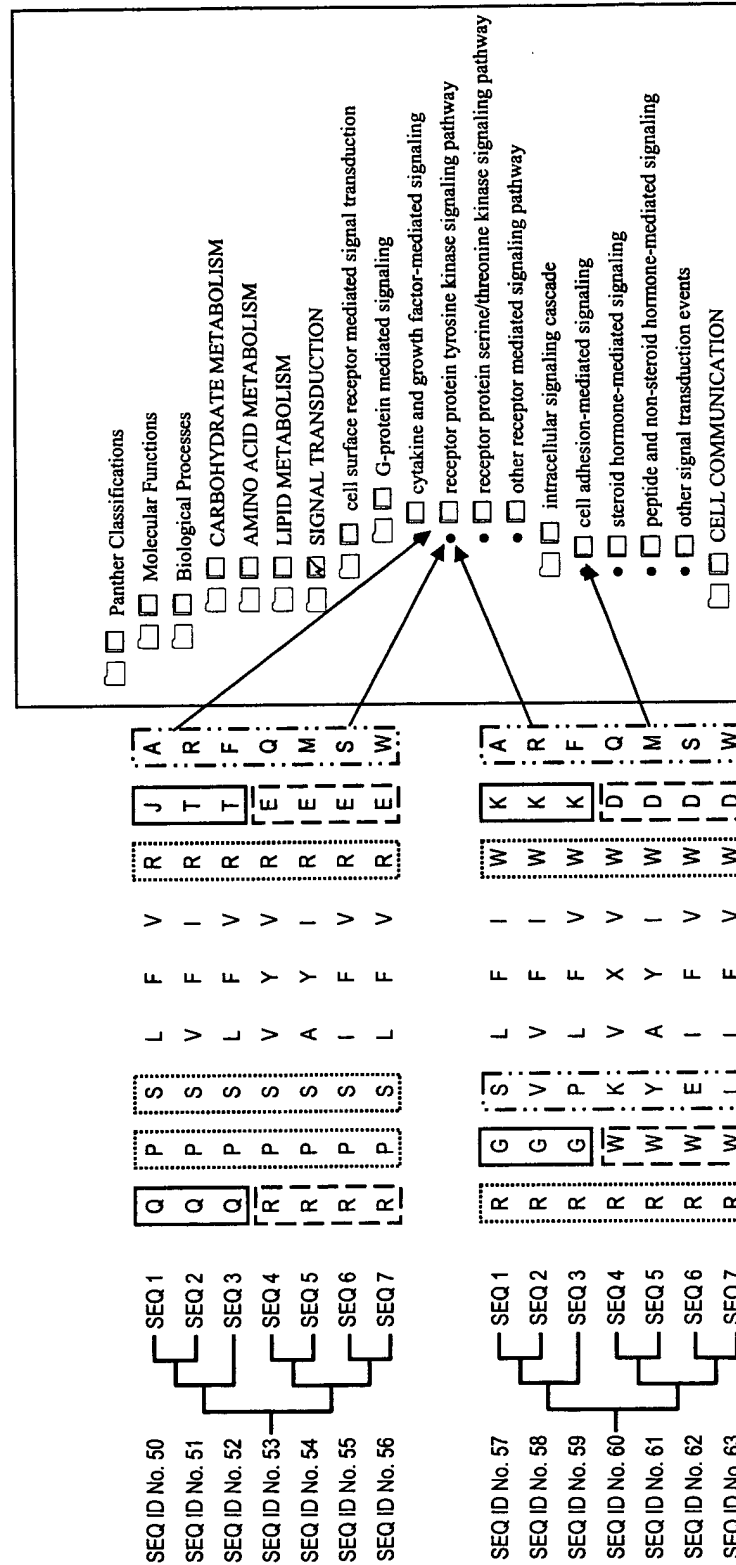


Fig. 49